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Antiquity of the Human Race. Further Links in the Chain of Evidence.—A Paper read before the Bedfordshire Architectural and Archæological Society, Dec. 20th, 1870. By James Wyatt, F.G.S., Bedford.

Constant and attentive observers of the proceedings in courts of justice frequently come to the conclusion that the most reliable testimony is that which is termed "circumstantial evidence." The so-called direct evidence of eye-witnesses is sometimes faulty through the influence of a fertile imagination; and the statement of the case made by Mr. Serjeant Hypothesis at the opening of the proceedings appears to be only feebly assisted by his witnesses, and is rather likely to be damaged by the advocacy and negative evidence on the other side. Happily for the ends of justice, Policeman X steps into the box at the right moment and gives a calm version of what has come under his review of the case. He further produces, in corroboration, some articles he has found, and describes some foot-prints he has examined, and these being well identified furnish the proofs required to convince the court and jury that the prisoner had really been on the spot at such a time. Now although I do not presume to say that the inquiry into the "Antiquity of Man" is a precisely parallel case, it will be admitted that it has some analogous points, and certainly in this suit the circumstantial evidence, and the little articles found are of the highest importance. Some of the advocates for restricting the time since man first appeared on earth, as also those who have claimed an enormously expanded period, have been very earnest, very positive, and sometimes logical: now, however, the theories are confounded on the one hand and corroborated on the other by what in new phraseology is described as the "inexorable logic of facts" which everybody can understand. Archæological policemen have been groping about with a definite object and to some purpose during the past quarter of a century. It appears that they have produced in their way such an accumulation of substantial proofs as to give a more positive view of the case, and enable not only the scientific court and jury, but also the ordinary spectators to form a more decided and correct opinion upon its real merits.

When the investigators of the post-pliocene drift deposits triumphantly produced the flint implements as evidence that Man existed on the earth at a time when the fauna was of a different character to that of the present day, and the climate of much greater severity than that which now prevails in this country, it was thought by them that enough had been proved to warrant a verdict. But there were, nevertheless, many excellent and thoughtful persons who still hesitated to accept that evidence as conclusive; and possibly there were thousands more who without expending much thought upon the subject disbelieved the whole case. It was so easy for these to say, and so difficult for archæologists to contradict, that it was still "an open question;" and it was so very embarrassing to be told that "the flint implements were, of course, very interesting objects, but that, after all, there was no positive proof that they had been made or used by man—that it was all conjecture—that no human bones had been found with them—and indeed that those things might have been made by monkeys or some other ingenious animals, and really some animals are so very ingenious that it is difficult to assign a limit to their powers!" Or it might have been that these flints were fractured into their present form by the "torrential action of water!" &c., &c.

It is easier, perhaps, to rally from the shock of a flat contradiction given by a general unbeliever who has taken no trouble to weigh the evidence, than to recover from the cold shrug of shoulder and shake of the head of the better-informed opponent; for it is vain to refer to the elaborate treatises which have been issued by the recognized authorities, and to the personal experiences which have led up to these works, if opponents once have their prejudices aroused and are reluctant to have their opinions disturbed. In this instance the worthy opponents insisted on a line being drawn between proofs and theories; and they have drawn it at *bones*. The presumed absence of human bones, therefore, in association with the chipped flints was insisted upon as a fatal objection to the whole case advanced on behalf of the antiquity of man. Even the discovery of the Abbeville jaw-bone did not help the case on; indeed in some respects it rather retarded it. But in describing this case further we should be only giving a repetition of the old story;—the truth will turn up some day however deep it may have been buried.

In a former Paper[1] I presented an analysis of the evidence of man's works having been found in the post-tertiary drift deposits, and under conditions which proved their great antiquity; and I now propose to examine briefly the links of evidence which have been since obtained to complete the chain, as some believe, or to corroborate the former proofs, as others contend. The late systematic investigations of numerous caves in different parts of the world by some very accurate observers have been conducted at the right time and in the right manner to be of essential service in this inquiry. The earlier discoveries of relics in caves were more injurious than beneficial, and especially by reason of the indiscriminate manner in which the investigations were made; the gathering together of a large number of objects representing various periods of time merely tending to obscure rather than enlighten the minds of the explorers. It is very probable, too, that in the digging-out of cave floors about fifty years ago, many objects were found and cast aside as of no account, and many altogether overlooked which would be of inestimable value at this period of the inquiry. When we read of a large amount of cave earth and "several baskets full of teeth and bones" having been taken away before any careful examination of the deposits was made—(as described by Dr. Buckland[2] in the caves of South Wales, Yorkshire, Derbyshire, Dorsetshire, &c., &c.)—we need not be surprised that even so sagacious a person as he failed to see the full value of the dirt floors of these early dwellings and their contents. Even in one instance where the Doctor himself conducted an exploration with greater care, we find that he thus curtly dismisses a relic which would be "worth its weight in gold," and more too, if it could be found now in situ;—"I found," said he, "also fragments of charcoal and a small flint, the edges of which had been chipped off, as if by striking a light."[3] With the knowledge now possessed, the discovery of this relic with charcoal in

(1) Vol. VI. p. 71 (1861-2).

(2) *Reliquiæ Diluvianæ.*

(3) *Ib.*, p. 83. Cave of Paviland.

cave earth, would alone be sufficient, probably, to establish a case of occupation by an early race; and the form of the little implement itself might determine whether it was a real strike-a-light of olden time or a flint weapon of a period of extreme antiquity. At the time when that discovery was made, the great question of the antiquity of man had not been fairly discussed; so that explorers may be excused if they did overlook many objects of interest; but in the present day a careless investigation involves a real loss to science. The pious caution of the Mayor of Aurignac[4] in covering up in the cemetery the seventeen skeletons found in a cavern was praiseworthy as a mark of respect for the dead, but that sentimental proceeding completely deprived the world of some most valuable and interesting facts, which, in all probability, would have helped ethnologists in the discussion of the question of the race-characteristics of the early cave-dwellers. The preservation of those remains might have gone far to settle the question; or at any rate to remove the hard and fast line drawn at "bones" by the cautious sceptics.

Fortunately, the discoveries of flint implements in the valley deposits have given such a stimulus to investigators that there is no reason to fear now that any relics which may come under their notice will be passed away with insufficient examination. It is a matter of congratulation also that the archæologists of all nations are in close communion on this subject, and it is satisfactory to know that the constant interchange of information has done much good service in the prosecution of the inquiry. The volume issued by the International Congress of Pre-historic Archæology is a choice result of this fraternity of savants, but even this is surpassed by the magnificent work[5] now in the course of publication, which gives the account of the combined labours of our late estimable countryman, Mr. Henry Christy, and the accomplished French archæologist, M. Lartet. A comparison of the results obtained by numerous investigators in various countries has already secured sufficient evidence to warrant the advocates of the high antiquity theory in taking a bold stand against the doubters. It would be beyond the scope of this memoir to attempt to give an account of the various gradations of this investigation; the present object being rather to show that one of the strongest links in the chain of evidence is that which has been obtained of late years by means of cave explorations carried out upon a proper system.

One of the chief points established by the examination of caverns and rock-shelters is the contemporaneity of man with several species of the large mammals now extinct;—that is to say, in more precise terms, the fact which was first established by the discoveries of flint implements in the post-tertiary drift beds has been fully corroborated by the deposits in the caverns. But there

(4) Lartet's *Memoir to the Institute of France*, 1861.

(5) *Reliquiæ Aquitanicæ.*

is another point which has, in the opinion of many observers, been established—and it is that to which this essay is more especially directed—that the contemporaneity of the old flint-folk of the valleys of Bedfordshire, Norfolk, Suffolk, Wilts, and other parts of this country and of the North of France with some of the cave-dwellers of Europe, who have hitherto been regarded as of a much later period, is proved. After a very lengthened investigation, extending over several years, the committee for the exploration of Kent's Cavern, at Torquay, have reported that they have obtained sufficient evidence "to justify even the most cautious in holding and avowing the belief that man was, in Devonshire, the contemporary of animals that had become extinct before the times of history or of tradition."[6] The explorers of caves in other localities are justified in making similar statements.

It may be, as it has been, objected that the contents of caves represent no special epoch, but illustrate various periods of history; and that is so. If a cart-load of cave flooring be indiscriminately dug out and carted away to be examined, relics of various ages may be found; but such a mode of procedure is utterly unreliable and worthless, and to be deprecated entirely. But in those cases where every layer has been carefully examined, the general results have frequently been as startling as they have been chronologically valuable. The formation of the cave-floors themselves clearly indicates that the process, even if regular and continuous, must have occupied a vast period of time; and it is not uncommon to find examples where caves have been occupied by a species of hyæna now extinct, and by man alternately; each having left evidences of his occupation: and finally the whole has been sealed up by a thick coating of stalagmite. It is well known to mineralogists what a slow process is this formation of stalagmite in caves under certain conditions, and how small a film has been produced in those places where they have made a systematic observation. As this material is formed by the mere percolation of water through the limestone roof, the proportion of calcareous carbonate which it has thereby obtained and then deposited on the floor must be infinitesimally small in the space of a year. Admitting that the progress of the formation of stalagmite must depend upon the special condition of any cave, it is highly probable that carbonate of lime is deposited more slowly in caves, as time goes on, from the partial closing up of the apertures through which the water percolated. When, therefore, this point is considered, that the stalagmite floors which seal up all others below them are often found of great thickness, it is difficult to estimate by ordinary computation the time which has been so occupied. But, after all, perhaps in the consideration of this question the great advantage of finding a stalagmite flooring is the evidence it affords of the undisturbed state of the deposit beneath it. Too much importance can hardly be assigned to the objects found in such an

(6) *British Association Report*, Dundee.

undisturbed deposit, as they are without doubt positive evidences of high antiquity.

The numerous caverns existing in the limestone districts in various parts of the world contain many features in common; and there appears to be no doubt that in all of them a very thin layer of the flooring matter of the cave earth represents a very large period of time. The Kent's Cavern explorers give as their opinion that even the uppermost deposit of black mould, above the stalagmite bed, represents at least two thousand years; everything below that being older and older in proportion. These remarks show the necessity of extreme care in ascertaining their actual position in the layers when dealing with cave-relics in questions of chronology: but so much has been done of late years, and done so well, that certain types of tools and implements can be readily classified and assigned to the different epochs of man's residence. Some of these relics bear so remarkable a resemblance in their structure and form as to suggest the idea that they must all have been made at the same factory, although discovered in different and widely separated localities.

In the lowest deposits of these cave floors is the best evidence found, as a rule; but not the least interesting of these layers is a black band which is sometimes continued through nearly the whole depth of the cave earth. This carries its own evidence, not only that it was the hearth of the oldest occupiers, but that it continued so with their successors in the cave. In this "hearth-stuff" the most interesting objects are frequently found, but they are just such things as the uninitiated explorer would throw aside as of no interest or value—such as fragments of bone, flint, and chert; pebbles, and lumps of hard stone. The experienced eye detects in many of these articles flint-flake knives, the cores from which they were struck, the pebble-hammer, bones split lengthwise designedly, and some of the splinters made up into pins, drilled-eyed bone needles, barbed harpoons, pieces of ivory worked up in similar forms, and portions of stag's and reindeer's antlers, also utilized in many ways. But it is when such a haul of prizes is made that the real interest in the work begins. The subsequent examination of the relics themselves demands the skill of the antiquary and the palæontologist combined: and in the investigations so carefully conducted in the French as well as English caves, the results shew remarkable uniformity in the habits and customs of the old cave dwellers. There is one kind of relic in cave floors which, until lately, had not sufficient attention directed to it—the long bone splinter—which is found in considerable numbers in all caves where evidence is given of continued occupation. As numerous bones are found fractured and gnawed at the ends and edges, all broken bones were until lately credited to that persistent bone-crusher, the hyæna (spelœa): but later and more careful examinations, and notably those of Mr. Pengelly, in Kent's Cavern, have led to the conviction that these bones were split by the old folk, not only for the purpose of extracting the choice morsel of marrow, but also for the purpose of obtaining suitable pieces of bone for the construction of pins, needles, and harpoon-heads. The hyæna has, from his earliest time, had his own mode of fracturing, and he cannot produce such fragments as these. When, therefore, long splinters of bones of this kind are found, they give certain evidence of human agency. It may be said that they do not necessarily imply great antiquity, as the savage of to-day with a pebble drives a pointed stick into the cavity of the bone, and accomplishes the two objects. But the bones themselves tell us something on that question of time. They are the bones of rein-deer and other animals no longer to be seen in these parts:—the harpoon-heads are also constructed from the bones, tusks, or antlers of extinct animals. The sceptical mind readily starts another objection, and suggests that, although it cannot be denied that these are the bones of the extinct horse, ox, and mammoth, and the antlers of the rein-deer which now are found only in arctic countries, yet such bones, tusks, and antlers, might have been discovered in a fossil state by the cave-dwellers themselves in a comparatively modern period, and then converted into implements. Not so: because bone and ivory in a true fossilized condition, having lost their gelatine, would be too brittle to be thus worked-up and utilized; and further, the bones which evidently formed the fragments of the feasts of the cave men, the bones of the extinct animals found elsewhere, and the implements themselves, are alike in their mineral condition, and are as much "fossil remains" as the bones of the mammoth and rhinoceros found in the gravel drifts of the valleys.

There is, however, another important fact brought to light by Messrs. Christy and Lartet:[7] many of the bones, antlers, and fragments of ivory exhibit incised ornamentations and designs, and many of the teeth are drilled through for suspension, probably as necklaces or pendant ornaments. In another way these engravings convey to us the most convincing proof that they were executed by human beings at the remote age suggested. That these incisions were made on the bone, antler, and ivory, whilst in a fresh condition, is insisted upon by palæontologists whose opinions command respect; but even if, for a moment's discussion, we accept the argument that they were made by comparatively modern savages, upon fossil bones, &c., our sceptical friends must accept the responsibility of showing by what means these savages knew that there ever had been such animals as they have carved and engraved. The handles of several of the implements are carved to represent the animals themselves, and many tablets bear incised drawings of other animals, and some objects not yet very clearly deciphered.[8] By what process, then, did the cave-dwellers know the forms of the animals to which the bones, &c., belonged? If these great animals,

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(7) *Reliquiæ Aquitanicæ.* (8) *See Plates.*

the mammoth, rein-deer, cave-bear, and cave-hyæna, had become extinct, how could the cave-artists know that there had been a light-limbed animal, with long straggling horns, showing peculiarities in the antlers not to be seen in other varieties of the deer species: and how also could they know that the large bones and teeth belonged to an elephant, also possessing peculiarities of curve of tusk altogether different to those of species existing in the present day? With all their ingenuity we cannot credit those cave men with so much technical knowledge in comparative anatomy as to make them equal to the Cuvier, Owen, Falconer, Huxley, Busk, and Dawkins of our own period, and enable them to determine the form of an animal by a single bone or tooth. Nor ought we to be expected to admit that the cave men possessed the wonderful instinct of the German Professor who had never *seen* a camel, but was able to evolve the idea of one from the depths of his moral consciousness. No—we may safely assume that when a savage makes a drawing or representation of a natural object he has seen that object, especially when such drawing is intended to give a portraiture, and not a fanciful or "conventional" treatment of the subject; and in some of these cave relics the sculptures are very correct portraits of the animals represented. In the cave of La Madelaine Messrs. Christy and Lartet found a piece of mammoth tusk, on which was sculptured the head of that animal, showing the curves of the tusks peculiar to that species of elephant. At the International Exhibition at Paris, in 1867, there was a magnificent exhibition of sculptured relics of this kind, found in the caves of France, which are not at all likely to be brought together again. It is, therefore, some satisfaction to know that the collection was described rather fully in a special memoir, in addition to the official catalogue.[9] There are also collections in the Museum at St. Germain, in the British Museum,[10] and in the Blackmore Museum, Salisbury;[11] to which the public have access; and great assistance in the study of the articles themselves is given by the admirable treatises and catalogues which have been published lately for that purpose.

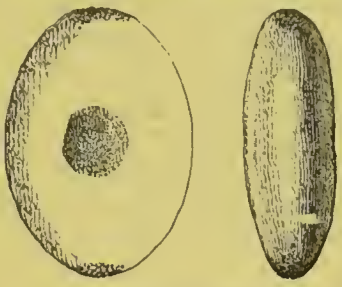
It cannot be too strongly enforced that great discrimination is necessary in the exploration of caves and in the classification of the relics obtained, especially as the transition from the palæolithic to the neolithic types of some of the tools and implements appears to be gradual, whilst in some implements the same form has continued from the earliest time to the latest when such have been used. For example, the flint implement called, for want of a better name, the "scraper," varied in outline and general features only in a trifling degree; and the flint knife or "flake" of one type has been transmitted from the savage fabricators in the first recognized period of man's earthly sojourn to the knappers of the present day. It is a remarkable fact that a selection of flakes may be made from amongst

(9) Mortillet's *Promenades Préhistorics à l'Exposition Universelle.*

(10) Franks' *Guide to the Christy Museum.*

(11) Stevens' *Flint Chips.*

these relics of all periods, which at the first glance might be supposed to have been all found together in the earthy deposit of any one period.[12] This remark applies to the modes of making the flake as well as to the form, for there is very little doubt that the drift and cave people obtained their flakes from blocks of flint and chert, both by *percussion*, as practised at this moment by the Shasta Indians and the modern gun-flint knappers of Suffolk, and by *pressure*, as adopted by the Esquimaux, and by the Mexicans, from their blocks of obsidian. It is probable that the ancient people obtained their flakes from a lump of flint by means of a smart blow given to it by a pebble hammer, in the manner shown by the subjoined cut. *(Fig. 1.)* The blow was directed at the angle of the flint, and, if successful, it would detach a flake, or thin slice, sometimes the whole depth of the flint core, according to what the flint-knappers technically describe as the running quality of the flint. Numerous pebble hammers of the kind figured in the subjoined cut have been found which give evidence of having been used for such purposes. *(Figs. 2 and 3.)* There are, however, differences between ancient and modern flakes, which the eye of an expert detects, but they are chiefly in the complexion and not in the shape of the flakes. For example, the flakes found in the valley gravel deposits of the post-pliocene drift have taken the colour of the rest of the deposit, which is generally of a ferruginous or ochreous tint; and the whole surface has become "patinated" and glossy. In those deposits which are more argillaceous the surface of the flakes embedded becomes white and porcellanic in appearance. Many of those found in cave-earth have this kind of lustre; but others are partially calcined, especially those found in the hearth-stuff. The appearance of cave flints depends upon the nature of the floor, but usually they are "clouded," and they are spotted with white if resting on clay. This appearance is confined to the upper and exposed surface of the flint. Those of the neolithic period present the appearances of patination, more or less; and on some which have been exposed to the atmosphere for a very long period (such as are termed "surface" specimens) there is often observed a very thick coating of porcelain-like patina, partly arising from



Figs. 2 *and* 3.

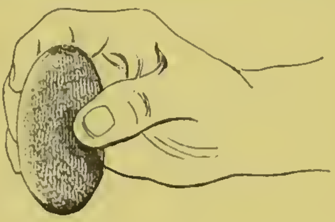


Fig. 1.

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(12) *See Plates.*

decomposition of the outer portion of the flint itself. Such a patina is produced more rapidly on a flint resting upon a calcareous soil than upon clay.

With regard to the oldest known type of implement, the rudely chipped flint, which passes under the name of "Hache"[13] not much variation of form appears. Under the hands of the designer a lump of flint was worked up to the desired shape by a succession of chippings along the edges produced by blows given at a certain angle by, probably, a pointed pebble of quartzite or some other hard rock. There is another type of the same period, however, the oval, or sub-ovoid form, which appears to have gradually developed into the most symmetrical lance-heads, bearing on both sides the most exquisite undulations and ripplings, produced by uniform conchoidal fractures over the surface. It is difficult now to determine how such effects were produced. The improvement, however, in the quality of work on the surface of this type of implement was gradual, and there is little, if any, difference in the workmanship of some of the oval implements of the drift and those made during the early occupation of the caves. This point is contested, however, by some archæologists; and a friend suggests that the delicately chipped lance heads found at Laugerie were probably nearly, if not actually, contemporaneous with the rudely worked flints from Le Moustier. Some of the specimens found in the valley deposits at Santon Downham, in Norfolk, as well as a few from the valley of the Somme, would tax the utmost ingenuity of any forger to imitate even with the advantages of metallic tools and modern mechanical appliances.

It is beyond doubt that some of the cave specimens of these implements are of the same age as those of the drift: indeed, the resemblance is so exact that a collection of the examples from many different localities shows not merely a uniformity of type, but a perfect similarity of workmanship in the details. Merely referring to one type, I may state that amongst specimens which have come under my own notice, I could select a considerable number of both drift and cave implements, of the oval form, which, if laid together, might reasonably be pronounced as of the same period, and be suspected to have been made by the same workman. And I would more especially, for such an examination, select of drift specimens several from the collection of my friend Mr. John Evans, others from the collection of the late M. Boucher de Perthes, another which *was* in the collection at the Louvre, one in the collection of Mr. Fitch at Norwich, six in the Blackmore Museum, one I obtained at St. Acheul, one I found at Biddenham, one I picked out of the drift near King's Lynn, and one in the possession of Mr. Albert Way, which was found by Miss Way some years ago in the drift at Bournemouth. Of the cave specimens I would

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(13) *Antiquités Celtiques et Antediluviennes,* by M. Boucher de Perthes.

select one found by Mr. Boyd Dawkins, in Wokey Hole Cavern,[14] some specimens displayed at the Paris International Exhibition from the caves of Tarn et Garonne, &c., some found in Kent's Cavern, and several which were found in the caves of the Dordogne, by Messrs. Christy and Lartet.[15] No doubt there are many others bearing the same resemblance.

It is probable that the drift deposits contain other relics of human art in common with the caves; they will, however, be more difficult to find: but the contemporaneity of these specimens to which I have referred, is proved by the fact that they were obtained from deposits which contain the remains of the extinct animals, and in some instances have been found in juxta-position with the bones and teeth.

There is another type of flint implement which is also common to the drift beds and the caves. It is a very broad flake, generally with no more facets or fractures than the ordinary knife flake. To produce these broad flakes much adroitness was requisite, as can be testified by all persons who have attempted to imitate them. It is very probable that this kind of flake was the basis from which the elaborate ovoid spear-heads and arrow-heads, and, possibly, scrapers were constructed.

So far as my own experience goes, there are but few specimens of another implement found in the drift beds, but of which there are numerous specimens in caves—and this is described as a saw. It is a long flake, the edges of which are serrated, and some of these specimens are curved. Experiments prove that they will produce those saw-marks which are found on the bone articles in the caves, and there is no reason to doubt that they were used for such purposes. I have found only two of these specimens in the Bedfordshire drifts, but it is probable that the explorers in other districts have been more successful.

Amongst the most interesting relics are the pins and needles constructed from splinters of long bones. With regard to the former, there are numerous examples from caves bearing a close resemblance. Of the needles there is a greater variety, and it is probable they are later in date than pins. For some time it was a puzzle to antiquaries how the eyes were drilled, metals not being known to the makers of these needles or bodkins. The researches in the Dordogne caves have produced the required information, in the form of pointed flints. It would appear that small flakes were chipped to the requisite point, and with these the eye-holes were easily made in the bone. M. Lartet has successfully experimented with these old tools, and drilled holes in bone. Doubtless the same little tools were used to perforate the pieces of ivory and bone, sea-shells, and canine teeth of animals, all of which appear to have been used for suspension as ornaments and necklaces.

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(14) *Geological Journal*, vol. XVIII. (15) Figured in *Reliq. Aquit.*

In the Belgian caves Dr. Schmerling found flint weapons and bone pins; and with these the two remarkable skulls on which so much has been said and written, especially with regard to the alleged low type of the human beings to whom they belonged.

In the drift deposits, and also in caves, there have been found examples of a broad flake worked along the edges and one or both ends, which are called "scrapers," and are supposed to have been used in the preparation of skins of animals. The author of that excellent manual, *Flint Chips*, in referring to this peculiar object, suggests that this was the implement in general use for dressing skins. In the bone caves they were very abundant. One obtained from the cave of Les Eyzies is represented in the accompanying wood cut: *(Fig. 4)* another cave specimen from the same district, is figured on plate with one from the drift deposits to show the resemblance. But the most remarkable fact in connection with this question is, that the same form of implement is in use amongst the Esquimaux at the present time for removing the fat from the skins of animals whilst in the course of preparation for clothing. An example of this kind is in the Blackmore Museum, of which the annexed cut gives a perfect representation, and of the natural size. *(Fig. 5.)* This "scraper" is mounted in wood grooved to receive the thumb and two first fingers of the right hand, as shewn in the subjoined cuts. The third and fourth fingers were doubled beneath the tool, in a groove made for the purpose. This implement had a planing action, and was pushed forward by the palm of the hand.[16] *(Figs. 6 and 7.)*

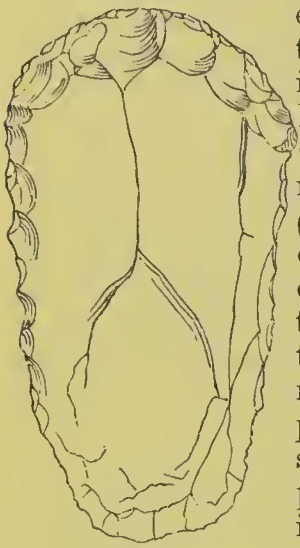
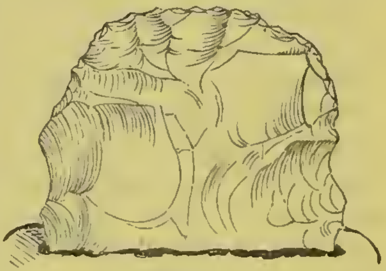


Fig. 4.



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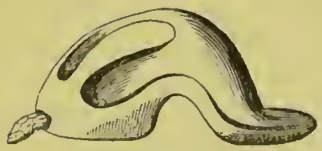

Fig. 6.

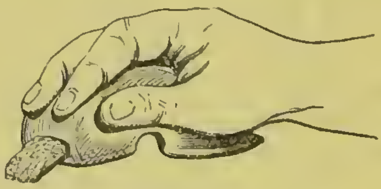

Fig. 7.

Examples of several varieties of ornament have been found in the caves of Britain and France, and it is interesting to know that with the skeleton of a woman seen by Dr. Buckland in the Paviland Cave, nearly fifty years ago, there were several articles of ornamentation similar to those found with the skeleton of a woman in the

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(16) For the description as well as the loan of the woodcuts I am indebted to Mr. E. T. Stevens, the author of *Flint Chips*.

cave of Cro-Magnon in the valley of the Vezere. With the former were found rings of ivory and "two handsful" of sea shells (the nerita littoralis) perforated. Close to that part of the thigh where the pocket "is usually worn" was a quantity of ruddle, and portions of the bones retained that colouring matter "composed of red micaceous oxyde of iron."[17] Necklaces of the nerita shells were found also in the Victoria Cave at Settle.[18] With the Cro-Magnon woman were found about three hundred sea-shells, the larger proportion being of the same species as those found with the woman at Paviland Cave, the nerita littoralis, several teeth of animals, and three amulets of ivory all perforated.[19] With her also was found a quantity of the red paint; and near to her were some rude stone mortars in which the colouring substance was ground. This paint was made from hæmatite; and the same mineral was found in lumps in the cave of Les Eyzies in the same valley. Similar colouring matter has also been found in the lake dwellings of Robenhausen in Switzerland, and is in present use by some tribes of the North American Indians and other savages.[20] In the conical mounds of Mississippi several paint mullers were found;[21] and in the mounds of Ohio "a quantity of red paint" was observed;[22] and a few months ago, in excavating an ancient burial-place in North Wales, Mr. Owen Stanley found a stone mortar in which hæmatite had been pounded.[23] "It is well known that if a lump of hæmatite be rubbed with water a red pigment is produced. * * * * No doubt when a ferruginous clay could be readily obtained, it would be used with grease for colouring the person, as with the Andamanese."[24] It will be seen by these and other examples that the early people were fond of strong colours, and there is no doubt as to the use of the ruddle by the cave ladies. In all probability it was very effective upon their dark skins; and who could grudge them that little barbaric decoration? Rather we might say with the fastidious poet—

"Nor could it sure be such a sin to paint,
Since painted, or not painted, all shall fade."[25]

An archæological authority who cast his eye over this portion of my remarks on personal decoration said—"I fear that the gentlemen painted as much as the ladies; and further that the colouring substance was used for decorating their weapons, &c. I think it will be found that among savages the dark-skinned are the best colourists, from the reason you assign. Thus the Melanesians are better colourists than the Polynesians."

There is another relic found in the caves of Britain and France which appears to have been used by the women,—the whistle. These articles were constructed generally from the snags of reindeer

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(17) Dr. Buckland's *Reliq. Diluv.*, p. 88. (18) Ecroyd Smith's *Memoir.*
(19) *Reliq. Aquitanicæ.*
(20) Dr. Keller's *Habitations Lacustres.* (21) Bartlett's *Progress of Ethnology.*
(22) Lapham's *Antiquities of Wisconsin.* (23) Hon. O. Stanley, in *Arch. Inst. Journal.*
(24) Stevens's *Flint Chips.* (25) Pope.

antlers and phalangeal bones, and have been found in the caves of Dordogne[26] and Tarn et Garonne,[27] in France; and Thor's Cave in Derbyshire, Settle Caves in Yorkshire, and a cave in the county of Durham. In Thor's Cave Mr. Carrington found seven of these articles, which were formed of the snags of deers' horns; but most of the specimens from the French caves were made from the phalangeal bones of the reindeer's foot.

The bone harpoon-head is another object common to the caves of Britain and the Continent, some of which are barbed on one side, and some on both sides. Both varieties are found in the Dordogne caves: a single-barbed specimen was obtained from the lowest deposit of the floor of the Settle cave, and Kent's Cavern has yielded examples of both forms.

A variety of amulets and other ornaments for suspension, made of ivory and bone, have also been found in many caves. They comprise little tubes with incised ornaments, oval tablets, (as at Paviland, Settle, Thor's Cave, and Cro-Magnon), pieces of quartz, teeth of red deer and other animals; but the most interesting relic of this character yet discovered is that which was obtained from the cave of Laugerie-Basse, and exhibited in Paris at the Exposition Universelle. It is a portion of an antler of a reindeer, having a drilled hole for suspension. On the surface is incised the head of an elephant; and it may have been that this was a souvenir of some remarkable incident in which that animal took part.

I learned from M. Louis Lartet that in the caves of Les Eyzies and La Madelaine there were numerous fish bones; and it is on record that there were salmon in the river which runs through this valley. These account for the small but elaborately worked bone harpoons discovered amongst the cave relics. Sculptured representations of fishes, on bone and ivory, from La Madelaine, Laugerie Bas in the Dordogne, and from La Vache in the Pyrenees, were shown at the Paris Exhibition in 1867.

Great discrimination must be exercised with reference to assigning certain forms of stone implements to certain periods, especially as the transition from what has been termed the Palæolithic period to the Neolithic, as represented by chipped flint implements, was very gradual. The cave occupation appears to connect them, and therefore must have extended over a great space of time. The smooth and polished implements of stone which are now identified with the "Neolithic" period are, unquestionably, illustrative of a much later era than that now under discussion. Until these investigations were made, it was supposed that the most ancient example of cave occupation by man was not earlier than the time of the people who used these smooth stone implements, and shortly before the discovery and use of metals. That idea must now give way before the numerous facts unfolded to us by the later explorations of the caves and the examination of the deposits forming their floors.

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(26) M. Lartet.

(27) M. Peccadeau.

The forms of some of the stone implements found in the caves being, as previously stated, similar to those found in the old river gravels near Bedford and elsewhere, proves their extreme antiquity, inasmuch as these "Drift" specimens are admitted to be the most ancient evidences of man's existence. On this point of the antiquity of the cave deposits, I may profitably quote the words of the authors of the *Reliquiæ Aquitanicæ:*—"No bone referable to a domestic animal has been found in either of the five stations (viz., the two caves of Les Eyzies and Moustier, and the rock-shelters of La Madelaine and the two Laugeries); and among the countless thousands of worked flints, of most varied types, which have been as yet collected, not one has presented traces of intentional polish on any of its faces. These two circumstances, combined with the constant presence of the reindeer suffice to distinguish definitely this *first* period of the age of stone simply worked from the *second* period when polished stone comes before us, together with domestic animals and habits of agriculture quite unknown to the earlier natives. This is a striking contrast, involving the supposition of there having been a great lapse of time between these two periods. For, if the rapid change of manners and customs might be explained by the invasion of a people more advanced in civilization, and by the extermination of the conquered, this would not account for the sudden disappearance of a species of animal (the reindeer, for example) of which we do not find any trace, either in the oldest lake-dwellings of Switzerland, or in the caves of the same age, containing polished stones and remains of domestic animals, or even in the earliest of the Dolmens." The same authors remark that when some persons "attribute to the flint implements found in the gravel drift a date more ancient than to those occurring in caves with a similar association of animal remains, such a proposition expressed as a systematic generalization is not justifiable in any point of view. It is not illogical to suppose that the men who manufactured the worked flints of St. Acheul, Abbeville, Hoxne, Bedford, &c., may, at one time or another, have inhabited caverns where they would have left traces of their sojourn, whether in the products of their industry, or in the remains of the animals they had eaten." In all these remarks I cordially concur, and with the greater confidence as I have found near Bedford not only the flint implements of similar types, but also the bones of the same species of extinct animals as those found in the French caves.

A friend of mine who heard me give utterance to the foregoing opinions, said,—"I have had for a long time a loose sort of idea that the people of the drift and cave period collected flints for the manufacture of implements during the summer months, when the streams would be low, and would have an exposed beach of coarse gravel (our drift-gravel) on each side. They would scarcely excavate for flint as did the later people at 'Grimes' graves.' The selection of forms suited to their purpose points to the large number from which a selection could be made. Query—did the drift-folk spend their summer roaming about, fishing and the like, and their winter *only* in the caves? Query again—would not the more delicate objects be made during this cave sojourn? Query again—may not some types of drift implements, not found in the caves, indicate a special use not needed during cave life."

With reference to the period when these caves were first occupied by man, it may be affirmed that it has been proved by excellent circumstantial evidence, and beyond doubt, that man and these larger animals were contemporaneous;—that such animals were suited for an arctic climate, and existed under such natural conditions as have not been experienced in England, France, and Germany within the historical period;—and that Britain had not then been isolated from what is now called the continent of Europe.

These physical conditions could not have been modified to those which we now enjoy by any sudden convulsion, but by a slow and steady process, which would necessarily involve a vast period of time—a period so great that, by comparison, our written history is but as a short day in the calendar!

When the original cave people lived in this country, snow and ice remained on the mountains and slopes all the year round. After lengthened investigations and much thought, Sir Charles Lyell has come to the conclusion that the glaciers had not forsaken the Scotch highlands in the days when man dwelt on the banks of the Somme, in the valley of the Thames, and in this valley of the Ouse at Bedford. And Mr. Boyd Dawkins says,[28]—"On the whole, therefore, it may be assumed, with a very high degree of probability, that the higher grounds of North Wales and of the barren areas in England and Ireland were covered with an ice mantle at the same time that the mammoth, reindeer, and other post-glacial animals were living in the lower and less inclement districts." And other geologists add with great confidence that at the time these post-glacial animals existed in this country, there was a plain which extended from the Wash in Norfolk to the mouth of the Rhine, including the area where the sea now rolls.

All doubters relative to the allegation of the great antiquity of this cave-dwelling period should merely apply their reasoning powers to this fact,—that not only are the animals on which these cave-people fed now extinct in this country, but that the earliest historical records make no mention of any such species being in existence when such history was written. The utter extinction of the whole range of animals in a country implies either a great and sudden catastrophe, or the consumption of a vast period of time. Of such an event as the former there is no proof; but of the latter there is a great accumulation of evidence. And as a climax to this evidence I may add that in the post-tertiary deposits in the neighbourhood of Bedford I have found species of freshwater molluscs which then existed in the rivers, but which have not lived here since the

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(28) *Exploration of Wokey Hole*, by Mr. Dawkins. *Geological Journal*, Vol. XXV.

extremely cold climate prevailed: and it is impossible that such changes could have been produced in reference to organic life except by an enormous lapse of time.

But there is one more fact to be added by way of proof that these cave-people existed at a time when the climate was excessively severe. An examination of the floors of the caves, in almost every instance, shows that the occupants merely threw the bones and fragments of their food on the floor to be trampled underfoot: and there are other evidences of what we should call "dirty habits,"—the keeping and butchering of animals, &c.,—which, if carried on under a mild temperature, would be sufficient to make a Sanitary Commission prepare a very long Report in a large Blue Book, and throw a Board of Health into convulsions. Such a state of things implies a low social condition of the people at that period, when it was a constant struggle for existence,—when, in short, the nose was not so sensitive, and the nerves so delicately strung as now; but it appears that except for the salutary influence of frost, and a general low temperature, the people could not have existed under such filthy conditions. Any person who has ever been in close quarters with reindeer can form some slight idea of what must have been the odour of a cave into which the carcases of these animals were brought, and whose skins, in all probability, furnished the clothing of the cave people.

A few remarks appear necessary here with regard to the characteristics of the cave people. There are many persons who highly esteem a long pedigree; the more extended genealogy being with them the more estimable: but if a long line of ancestry be a covetable qualification for the inhabitants of a country or district, there is here a very extensive field of inquiry open to them, compared with which the roll of Battle Abbey is most insignificant. As to the well-rewarded adventurers who "came over with William the Conqueror," and appear to be considered by some as the most desirable persons to be related to, they are mere parvenues and fellows of yesterday. Now, to trace a pedigree up to the hunters who dwelt in caves, and to the aboriginal squatters in the Ouse Valley, that would indeed be something to talk about! And yet who will say that it is impossible, if we are to respect the theories of some ethnologists as to race characteristics? To trace the pedigree beyond that cave period might however be less agreeable, if we were to accept the dictum of one section of naturalists; and it might terribly shock the amateur genealogist to run his researches to so extreme a point as to find himself face to face with the gentleman who never troubled himself about tailors' bills, and whose lineal descendant is fated in this civilized age to be occasionally caught and caged in the zoological gardens, and be privileged to crack nuts, and claim admiring spectators as cousins. These wonderful new theories of one school of naturalists are not comfortable for timid and fastidious persons to contemplate; and therefore, perhaps it may be well for them to stop short in the pedigree investigation at the cave period; for it is the tendency of a certain class of naturalists in the present day to strain their theory until it becomes revolting to ordinary minds. Such extravagancies, however, will not deter the philosophical inquirer in his investigations of the race characteristics of the most ancient people of whom we have any reliable information. And the results obtained so far by bonâ fide proofs go to show that the drift and cave people were the earliest inhabitants of this country; and any evidence indicating the kind of persons they were cannot fail to be interesting to all classes of inquirers. For this reason the skeletons found at the rock shelter of Cro-Magnon are objects of intense interest to the ethnologists of the whole civilized world at this moment. The most distinguished anatomists of the age have held many inquests upon them; and notwithstanding some differences of opinion, there are certain points of agreement with regard to the characteristics of this ancient people. One thing is quite certain, these French cave people were, in many respects, of a higher order of human beings than those whose remains have been found in some caves in Belgium and other countries. The general conclusion to which the French and English anatomists have arrived is that these cave-dwellers in the Dordogne valleys were tall and muscular, had large and long heads, and very sharp shin-bones;—technically speaking, they possessed dolichocephalic, prognathic, and platycnemic characteristics in a high degree. Some naturalists go so far as to affirm that the platycnemic tibia shews the close relationship to the ape! In the case of these cave-dwellers, however, the ample brain-space and general contour of the skull prove them to have been in intelligence not only far away from the monkey, but also greatly in advance of the ordinary run of savages. Their wonderful ingenuity, as displayed in the construction of their weapons and tools, and the excellent sculptures on the pieces of bone, horn, and ivory, prove that they had not only great capabilities, but that they had actually advanced far beyond many tribes of savages existing at the present day. Persons competent to speak authoritatively on these points, say that this people must have been intelligent as well as physically powerful; although in all probability they would not be pronounced handsome if they were suddenly introduced to a modern assembly, in European fashionable circles. We find that they all possessed the prognathic quality of face—that is, had very projecting mouths. They were, in profile, something of the type of the present race of African negroes. One of the skeletons at Cro-Magnon was that of an old man of remarkably fine proportions, and over six feet in height. He had a large long head, and showed signs of having been a person of great muscular power. There was the mark of an old wound left on one of the thigh-bones. Another skeleton was that of a very fine woman, above our present average height, and her skull indicated the advanced mouth in a modified form, but sufficiently pronounced to disturb our notions of a pretty profile. But, doubtless, she was well adapted to the period in which she lived; and one cannot but regret that there are suspicions that she was not sufficiently appreciated by all her friends and associates in that valley; for there is a wound on the side of her skull which was evidently given in her lifetime, and from the effects of which, in all probability, she died. It is just such a cut as might have been inflicted by one of the flint hatchets which these persons used, and of which they have left so many specimens in the caves. It is possible that the wound was inflicted by accident,—and so, let us give the tribe the benefit of the doubt. At all events, she appears to have been carefully buried among others of the same race, and many of her little relics along with her—sea-shell necklace, with ivory pendants and amulets, and some of her paint! Particulars of this remarkable discovery are given in the *Reliquiæ Aquitanicæ*, accompanied by beautiful representations of the relics as well as of the skulls and bones.

Unfortunately, in some of the earlier examinations of caves, the human remains have been re-interred or disposed of without having received a thoroughly careful examination; but of late years much valuable information has been obtained bearing upon the question of race. In the course of the exploration of the caves in the Rock of Gibraltar, made with much care by Captain Brome, great numbers of human remains were found, and these were subjected to the examination of the late Dr. Falconer and Professor Busk. The latter has on more than one occasion called attention to some peculiarities which attracted the notice of his colleague and himself, and lately he has explained them in detail.[29] In the Genista cave alone there were skulls and bones of about thirty-five human beings of both sexes, and some of the other caves in this famous rock also yielded many skeletons, more or less disarranged and broken up. Of the skulls which were made up from these pieces Mr. Busk says that they were of unusual thickness, and had the muscular impressions strongly marked. None, however, exhibited any tendency to prognathism; but one of the mandibles attracted his special notice by reason of its close resemblance to the Abbeville jaw. The skulls were dolicho-cephalic to a high degree; and the lower limbs were of a type not known amongst civilized beings of the present day. For example, they are described as having carinated femurs and platycnemic tibiæ, that is to say, keeled, or ridged thigh-bones and flat shins. On this authority, as well as that of M. Paul Broca, it may be stated that the skulls bear a close resemblance to the type of Basque crania, to the crania found in the caverns and dolmens of Andalusia, and confirm the theory that the ancient inhabitants of that part of the Iberian peninsula were of a uniform race, and that at the present day they are represented by at any rate a part of the population now inhabiting the Basque provinces. And they

(29) *Proceed. International Congress of Prehistoric Archæology*, 1868.

are of opinion that if the origin of the Basques is to be sought beyond the confines of their own country, the inquiry should be directed, not among the Celts, nor among the other Indo-European races, but rather in the direction of the northern zone of Africa.

In order to show the affinity of the ancient races of that region with those of Britain reference may be made in the first instance to a discovery made in North Wales during the past year. At the Liverpool meeting of the British Association, Mr. Boyd Dawkins mentioned, in the Ethnological Section, that amongst the rocks in the heights above Llangollen, at a place bearing the euphonious name of Perthi-chwareu, in a crevice caused by the disintegration of the rock at a joint, he found some bones of the extinct ox and other animals, and upwards of twenty human skeletons, apparently deposited there with great care. The bones were in that state which is termed "highly fossilized"; and they exhibited not only the dolicho-cephalic form of skull, but also the platycnemic type of shin bone. But further than this, an ancient cairn was found at Cefn, a few miles distant, in which were numerous skeletons of both sexes, all displaying the same characteristics. Professor Busk, who had an opportunity of examining these remains, assures me that the leg-bones were of the same type as those which he examined in the caves at Gibraltar. This platycnemic form of leg-bone arises, as described by M. Paul Broca, from an extreme lateral compression of the shaft, in consequence of which it loses its natural sub-triangular form, and presents an acute edge both in front and behind. From the number of skeletons found in the recess at Perthi-chwareu, as well as Cefn, it is very reasonably supposed that these were places of sepulture, as were also some of the Gibraltar caves.

It is quite certain that even at the early period of the occupation of Europe above suggested the cave-dwellers did not all belong to one race. The remains found in the Belgian caves were of persons of shorter stature, having short round heads, but no appearance of the sharp-shin peculiarity. These persons possessed more of the characteristics of the Esquimaux of the present day; and although the evidence cannot be considered as quite complete, some of our naturalists incline to the opinion that the Esquimaux are the direct representatives of one race of the cave men of Britain and Belgium, and especially those who inhabited Kent's Cavern and some other caves in this country.

M. Paul Broca says that of the Cro-Magnon persons "the great volume of brain and the development of the frontal region, &c., are incontestable characters of superiority which are met with usually only in the civilized races. On the other hand the great breadth of face, &c., &c., gave rise to the idea of a violent and brutal race. In short they displayed the highest and the lowest of the types now existing. At that time hunting only could provide sustenance for man, when the immediate wants of life necessitated a constant war against wild animals, such as the mammoth, and when at last the hunting territory, the sole resource of a tribe, had to be continually defended against the encroachments and attacks of neighbouring tribes, men were obliged, under pain of destruction, to accommodate themselves to circumstances, and live the violent life of savages."

The social habits of these people would appear to be simple enough. Of animal food they seem to have partaken largely; and their cookery was chiefly if not entirely confined to roasting and broiling: this opinion is confirmed by the numerous bones partially scorched which are found in the cave-floors. There were then no cats nor dogs to eat up the scraps; indeed there were no domestic pets--except the babies, and possibly tamed reindeer fawns. The custom appears to have been, when a large animal was killed in the chase, for the men to cut off the portions and joints most prized, and carry them to the cave, leaving the carcase and large limbs on the spot where the animal fell. All marrow-bones were, however, taken home, for the reasons previously assigned—their double value in containing the dainty morsel of marrow, and furnishing the material for making harpoons, pins, &c. The heads were sometimes taken to the cave and broken up, but at others were split open on the spot and the brain removed, as this is always prized by barbarous tribes for its utility in the preparation and softening of skins of animals. Modern savages in North America split up the bison's head on the spot where they kill it, using the hoof of the slain animal as a hammer.[30] The hearths and floor deposits of these inhabited caves do not contain the heads, vertebræ, and large bones of any animals except the deer. In the very early occupations of caves there are no remains of pottery: so that if the people boiled any of their food, it must have been by some of the rude processes adopted by savages of other countries, such as using wooden vessels and making the water boil by putting into it heated stones, a method which prevailed among the North American Indians down to our own day. It is, however, a question whether any stone pot boilers have been found in the caves recognized as among the occupations of the early period.

To summarize the results of the valuable investigations carried out lately, we may with certainty conclude that cave explorations, taken in connection with geological examinations of the gravel beds in the river valleys, have produced most important evidence of the antiquity of the human family. By them we learn that these islands were inhabited by a race of hunting tribes before they became islands, and long before the immigration of the so-called Celtic ancient Britons;—that these tribes were contemporaneous with the hunting tribes who inhabited the caves in the south of France and other parts of Europe, and had intercourse with them;—that these cave dwellers (if not actually contemporaneous) were descended from the "old flint folk" who inhabited the valleys of Bedford, Thetford, Icklingham, Salisbury, &c., in England, and of the Somme and Oise

(30) Stevens' *Flint Chips.* Catlin's *North American Indians.*

in France;—that they were likewise the contemporaries of the extinct elephant, bear, hyena, rhinoceros, and reindeer;—and that the period in which they lived was before the latest geological changes took place, and whilst an arctic climate prevailed in this portion of Europe. But these investigations give some evidence upon another grave and important question, the unity of the human race. This evidence, however, only tends to push the inquiry further back into the mist of ages than before: for even at the early period we have been discussing there were more races than one; as it is most distinctly proved beyond all cavil that there were tall men and women with long heads, and short persons with round heads; besides others displaying peculiar characteristics both of limb and physiognomy, and different in habits and intellectual capacity. Instead of these ancient skulls presenting, as was expected by some of our philosophers, a type of absolute uniformity, they show to the contrary. The quaternary race of Les Eyzies, says M. Broca, differs from the quaternary race of the caverns of Belgium, as much as the most dissimilar modern races differ among themselves, and this not only in the conformation and volume of the head, but also in the form of the limbs. It is, however, agreed amongst the anatomists, that the people of the Dordogne valley were the most advanced tribes of their period, an opinion which will be echoed by the archæologists who have examined with admiration the interesting specimens of their art and handicraft.

In concluding this brief review of some of the facts bearing on the great question of the antiquity of the human family, I will merely add a word or two to all students by way of entreaty that they will preserve all relics, and other evidence, which may come to their hands, for the great object of clearing away doubts and correcting fallacies; and to remind them that there is no amount of toil already expended which has not been amply rewarded. If it be indeed true, as the poet has affirmed, that—

"The proper study of mankind is Man,"—

then such inquiries as these are not merely fascinating allurements to scientific enthusiasts, but are fitting and noble themes for all who desire to penetrate pre-historic mists.

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CHOPPERS

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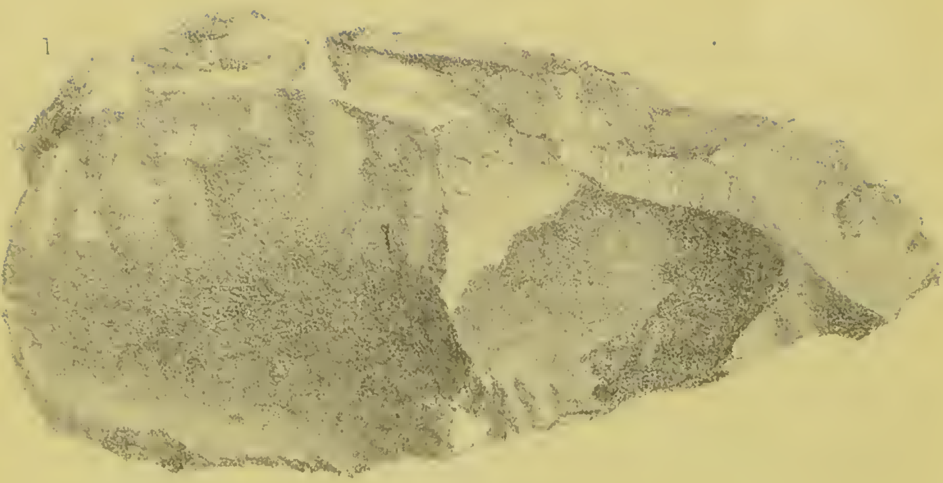

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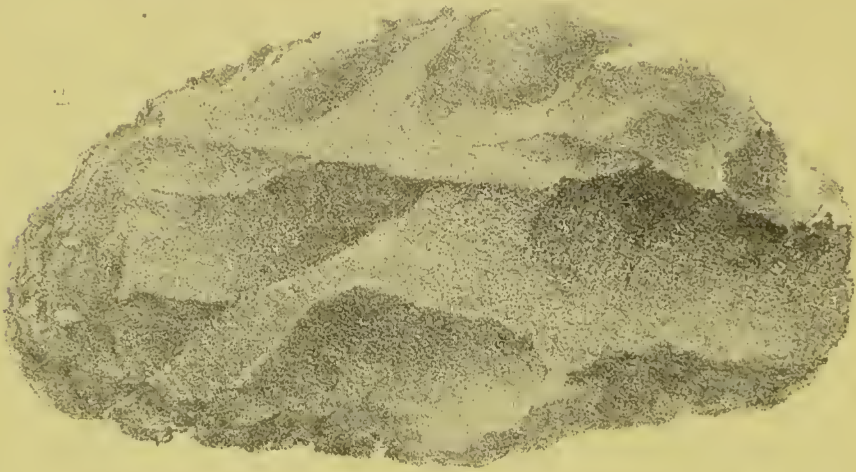

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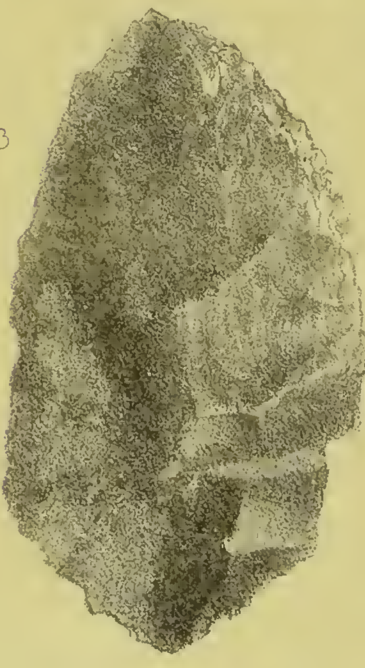

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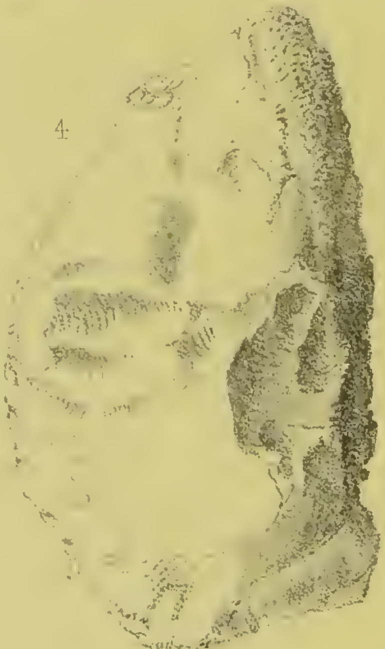

Hodge, lith

T Way, Imp^{t}

Plate II

OVOID LANCE HEADS

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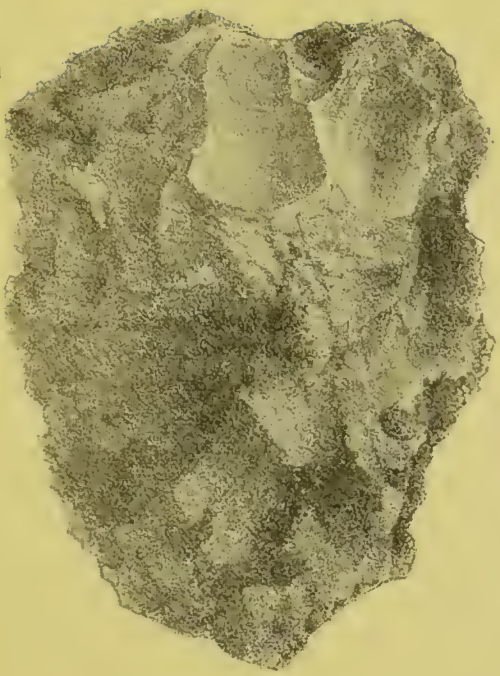

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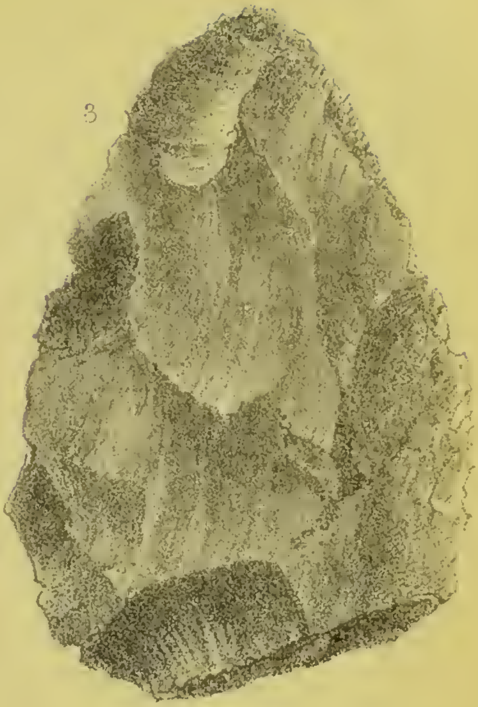

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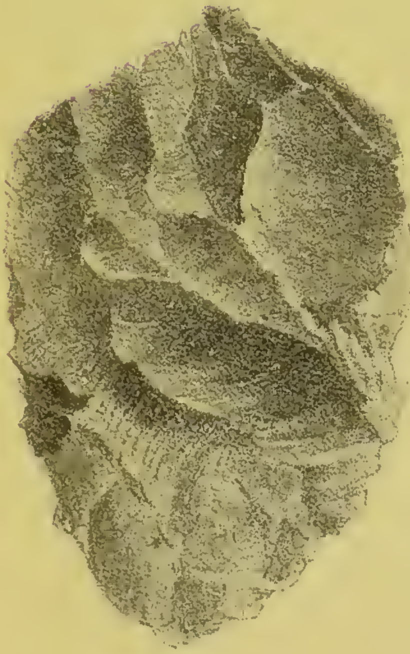

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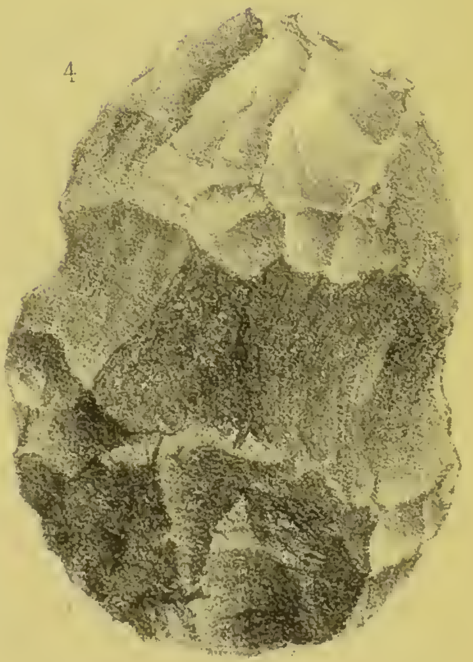

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LIBRARY

ROYAL COLLEGE OF SURGEONS OF ENGLAND
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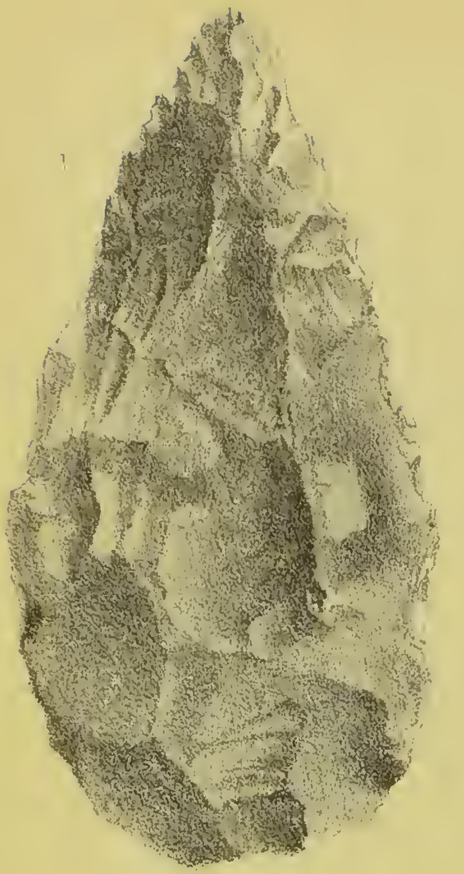
Plate III.

1



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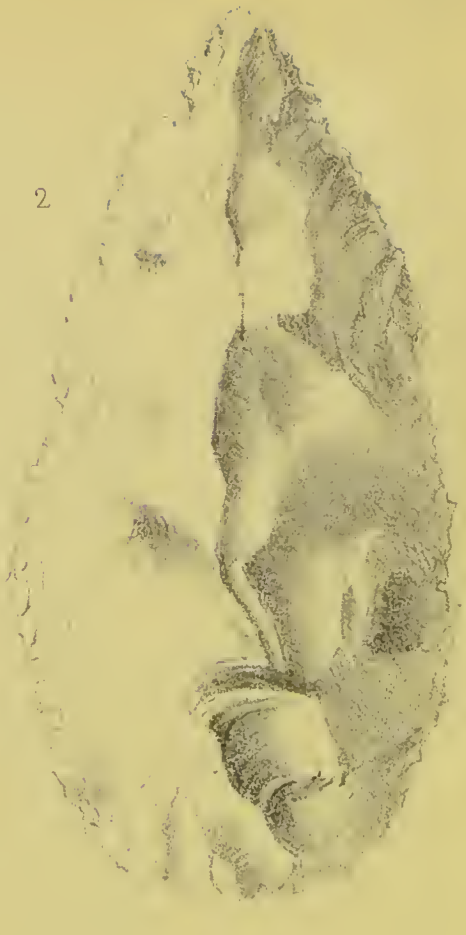

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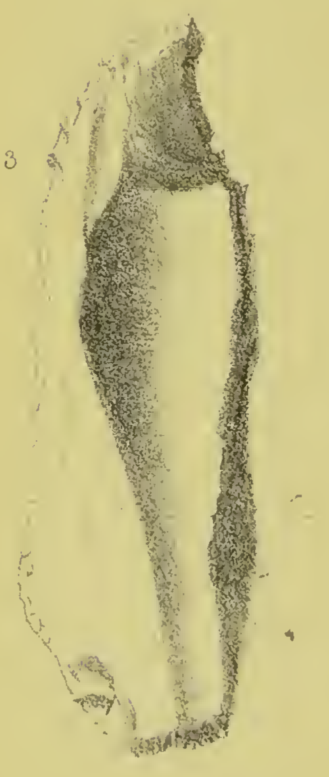

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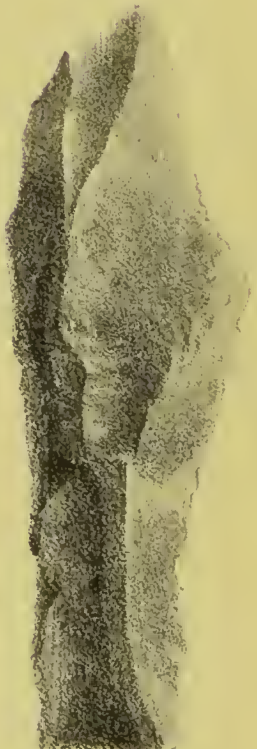

B Rudge, lith

T Way, Imp^t

Plate IV

OVOID IMPLEMENTS

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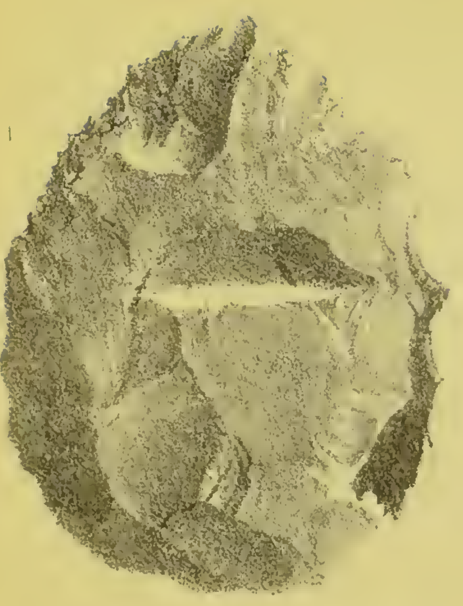

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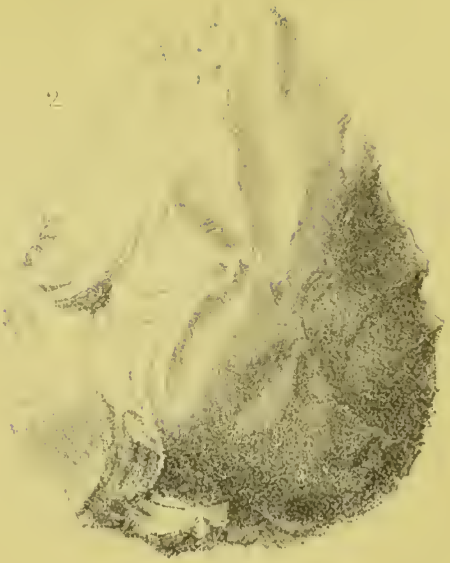

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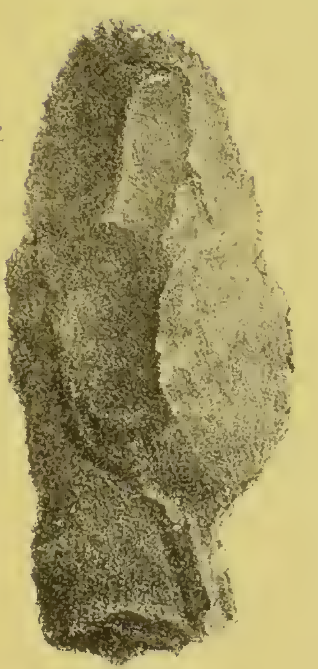

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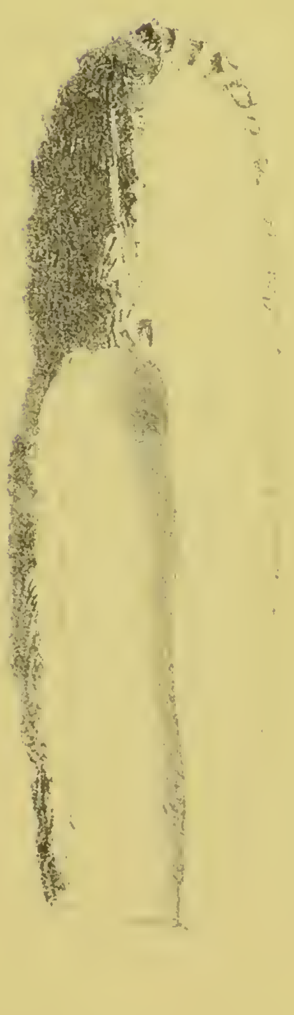

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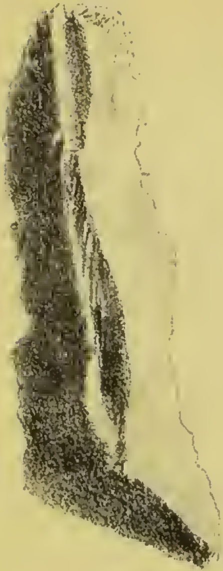
FLAKES, OR FLINT KNIVES

Plate V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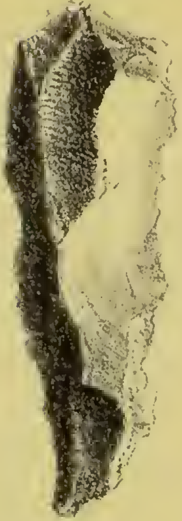
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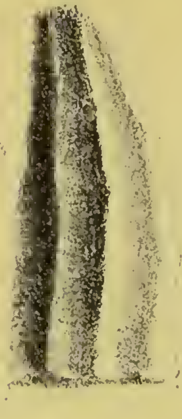
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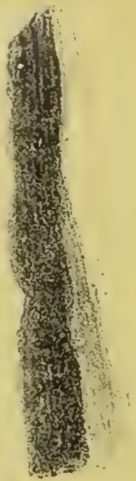
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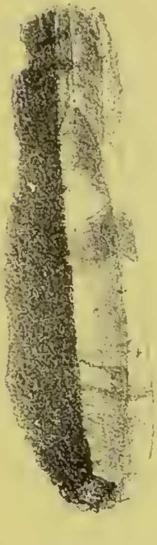
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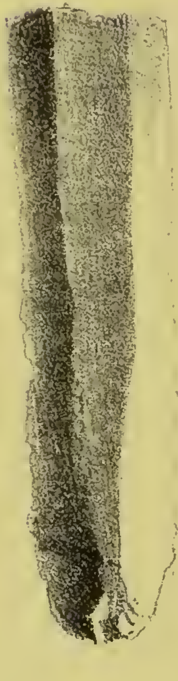
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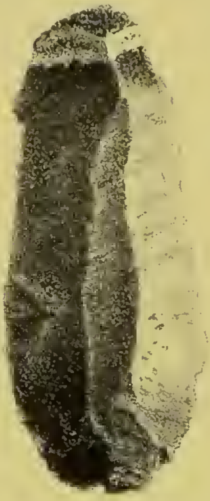
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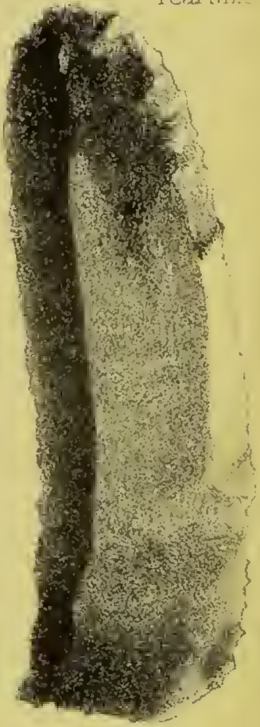
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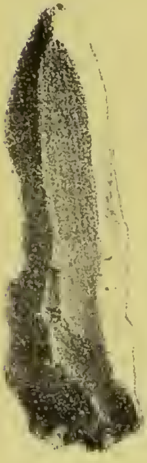
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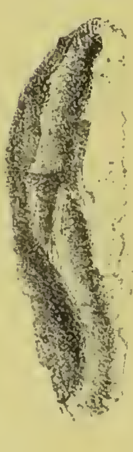
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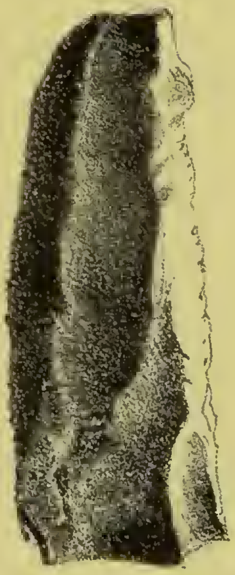
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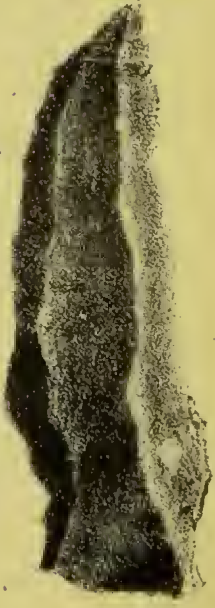
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DESCRIPTION OF THE PLATES.

Plate No. I.

Choppers.

No. 1. Flint Chopper found at Biddenham, Beds, in the collection of Mr. J. Wyatt............................ *Drift.*
,, 2. Ditto, Santon Downham, Norfolk: in the collection of Mr. R. Fitch .... *Drift.*
,, 3. Ditto, St. Acheul, Amiens...... .... *Drift.*
,, 4. Ditto, from Le Moustier, Dordogne (*Reliquiæ Aquitanicæ*)...... *Cave.*
[Similar forms were found in the caves of Les Eyzies and La Madelaine.]

Plate No. II.

Ovoid lance-heads. (?)

No. 1. Found at Summerhouse Hill, near Bedford: in the collection of Mr. J. Wyatt, F.G.S. .... *Drift.*
,, 2. Found at Santon Downham, Norfolk: in the collection of Mr. R. Fitch, F.G.S., Norwich...... .... *Drift.*
,, 3. Found at Bournemouth Cliff: in the collection of Albert Way, Esq., F.S.A. .... *Drift.*
,, 4. Found in Wokey Hole, near Wells: in the collection of Mr. Boyd Dawkins, F.G.S............................ *Cave.*

Plate No. III.

Lance-heads.

No. 1. Flint found at Biddenham................. .... *Drift.*
,, 2. Ditto found at Le Moustier .... *Cave.*

Beaked-scrapers.

,, 1. Flint scraper found at Cro-Magnon .... *Cave.*
,, 2. Ditto, found at Biddenham .... *Drift.*

Plate No. IV.

Ovoid implements.

No. 1. Flint found at Santon Downham .... *Drift.*
,, 2. Ditto found at Le Moustier .... *Cave.*

Scrapers.

,, 1. Flint found at Gorge d'Enfer............................ *Cave.*
,, 2. Ditto found at Biddenham .... *Drift.*

Plate No. V.

Flakes, or Flint knives.

No. 1. Biddenham: in Mr. Wyatt's collection.......... .... *Drift.*
,, 2. Porte Marcadè, Abbeville: ditto .... *Drift.*
,, 3. Serabit el Khadin, Sinai: in Blackmore Museum .... *Drift.*
,, 4. Les Eyzies: in Mr. Wyatt's collection............................ *Cave.*
,, 5. Les Eyzies: ditto..................... .... *Cave.*
,, 6. Genista Cave, Gibraltar: in Blackmore Museum.................... *Cave.*
,, 7. Valley of the Somme: Mr. Wyatt's collection .... *Peat.*
,, 8. Meilgaard, Denmark: ditto ... . *Kitchen Midden.*
,, 9. Toome, Ireland: ditto .... *Surface.*
,, 10. Westward Ho!: ditto .... *Submerged Forest.*
,, 11. Yorkshire Moors: ditto .... *Surface.*
,, 12. Flake recently struck from a block of flint by the writer.

Plate No. VI.

No. 1. Curious ovoid implement, found in a mound in Ohio, U.S.A. It has been flaked into its present form in the same manner, apparently, as the Drift and Cave implements have been constructed from flint. This beautiful specimen is in the Blackmore Museum.

,, 2. Flint implement found in the Drift at Biddenham, Beds. It resembles the above in the mode in which it has been flaked into shape.

[Similar forms, although not quite so circular, have been found in the Drift at St. Acheul, and in the Caves of the Dordogne.]

Plate No. VII.

No. 1. Piece of a reindeer's antler, on which are engravings, probably cut with sharp-pointed flint flakes. Some of the figures represent aurochs, horses, a man, and a serpent or eel.

,, 2. Piece of a cannon bone, or metatarsal of reindeer, on which two animals are engraved: one of these is recognized as a reindeer.

,, 3. Piece of reindeer horn, on which are carved two fishes, one on each side. This fragment is a small portion of some weapon or ornament.

,, 4. Piece of the beam of reindeer horn, with an indication of a hole for suspension. Two animals are represented, and are described as reindeer. On the other side are two horses.

,, 5. A piece of bone of a bird, probably a swan, on which is engraved an animal.

[All these relics were found in the Cave of La Madelaine, Dordogne, and are described and figured in the *Reliquiæ Aquitanicæ.*]

Plate No. VIII.

Portion of a carved beam of a large reindeer antler. It bears at one end the trace of a hole, is nearly cylindrical, and is covered all round by the curved outlines of four animals, two deer and two horses.

This plate gives the form of the antler, and the incised drawings in detail on the entire surface of it.

[This relic was found in the Cave of La Madelaine, and is described and figured in *Reliquiæ Aquitanicæ.*]

Plate

OVOID IMPLEMENTS

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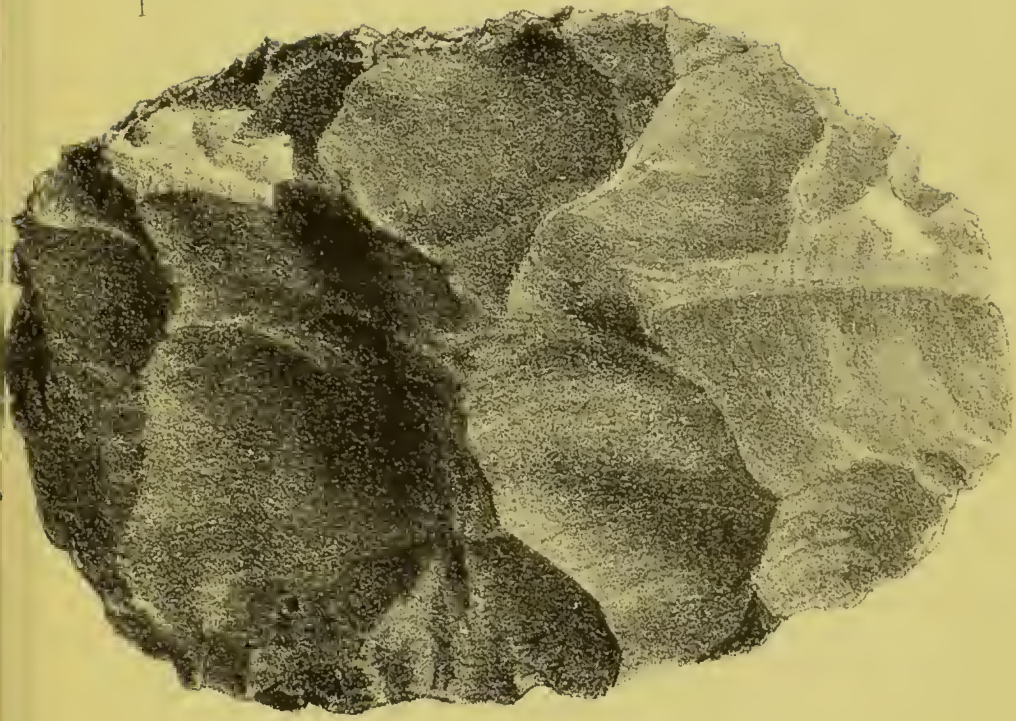

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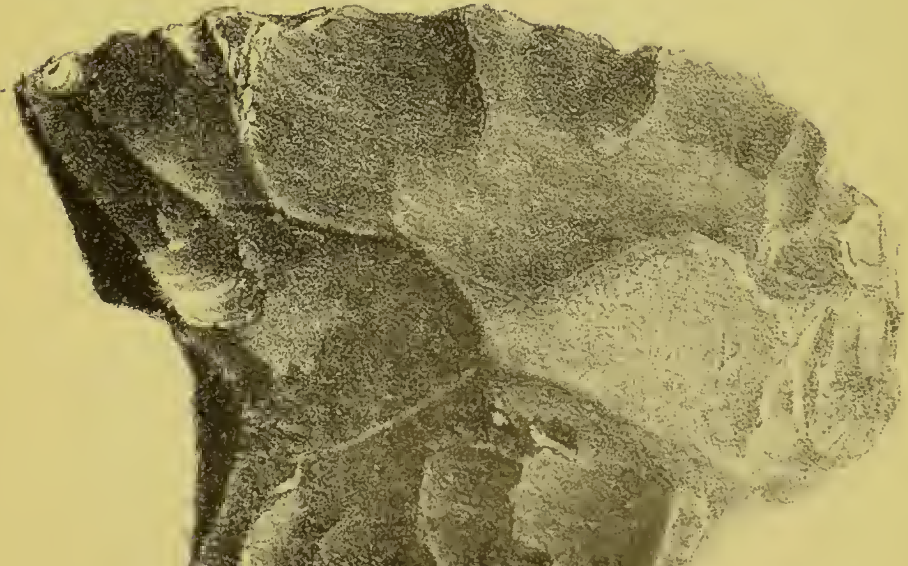

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Plate VII

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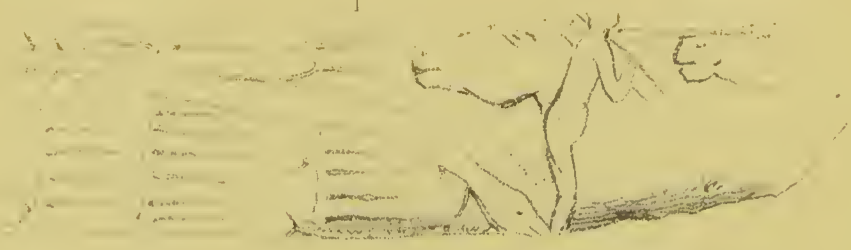

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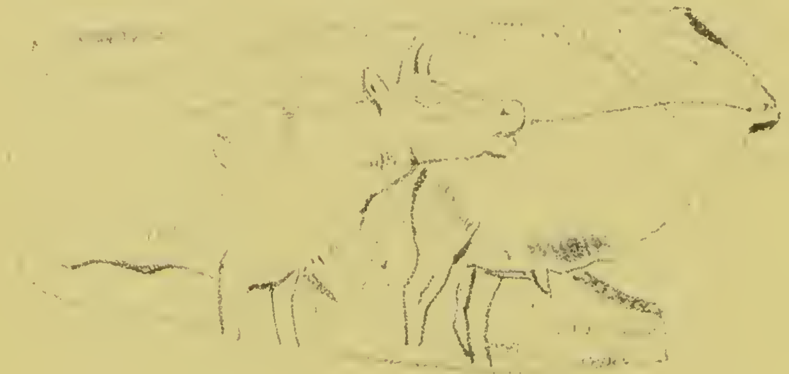

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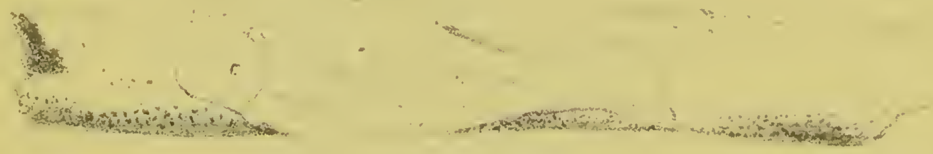

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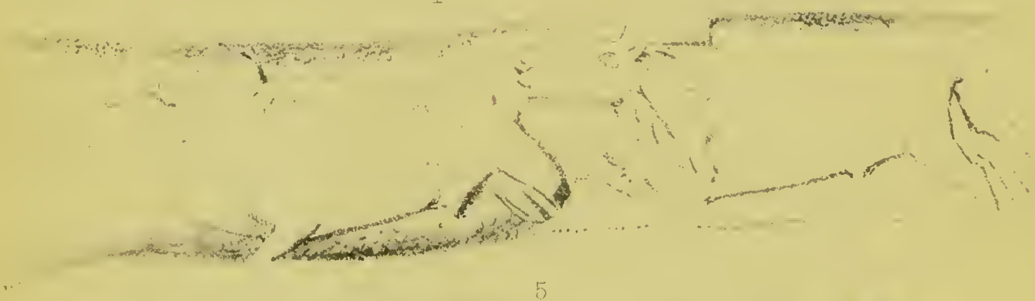

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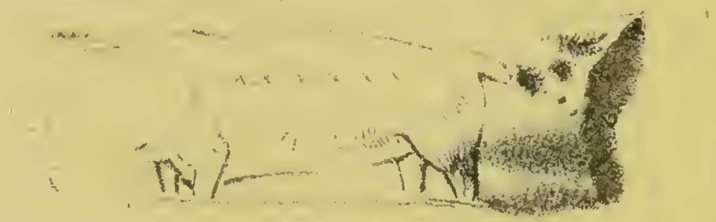

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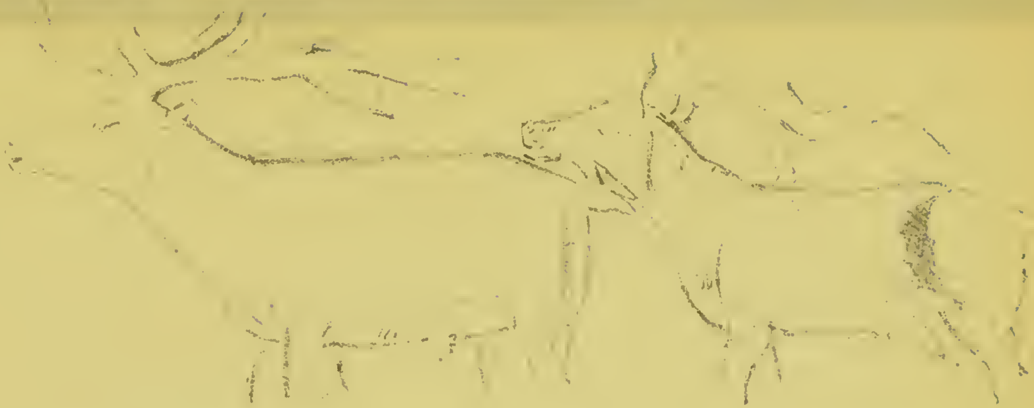

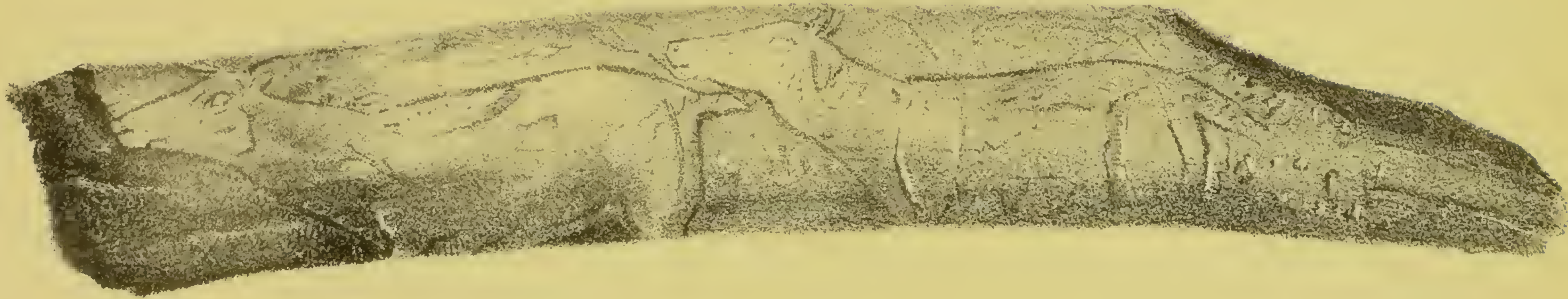

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